



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>G01B 7/34, G01N 27/00, 33/543, H01J 37/317, G11B 9/00</b>	<b>A1</b>	(11) International Publication Number: <b>WO 98/05920</b>
		(43) International Publication Date: 12 February 1998 (12.02.98)

(21) International Application Number: PCT/US97/13896

(22) International Filing Date: 8 August 1997 (08.08.97)

(30) Priority Data:  
60/023,732 8 August 1996 (08.08.96) US

(71) Applicant (for all designated States except US): WILLIAM MARSH RICE UNIVERSITY [US/US]; 6100 Main Street, Houston, TX 77843 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): COLBERT, Daniel, T. [US/US]; 1911 Milford Street, Houston, TX 77098 (US). DAI, Hongjie [CN/US]; 365 Pescadero Terrace, Sunnyvale, CA 94086 (US). HAFNER, Jason, H. [US/US]; 2129 Banks, Houston, TX 77098 (US). RINZLER, Andrew, G. [US/US]; 6666 Cherwood Drive #171, Houston, TX 77081 (US). SMALLEY, Richard, E. [US/US]; 1816 Bolsver Street, Houston, TX 77005 (US).

(74) Agents: TATE, Rodger, L. et al.; Baker &amp; Botts, L.L.P., The Warner, 1299 Pennsylvania Avenue, N.W., Washington, DC 20004 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

## Published

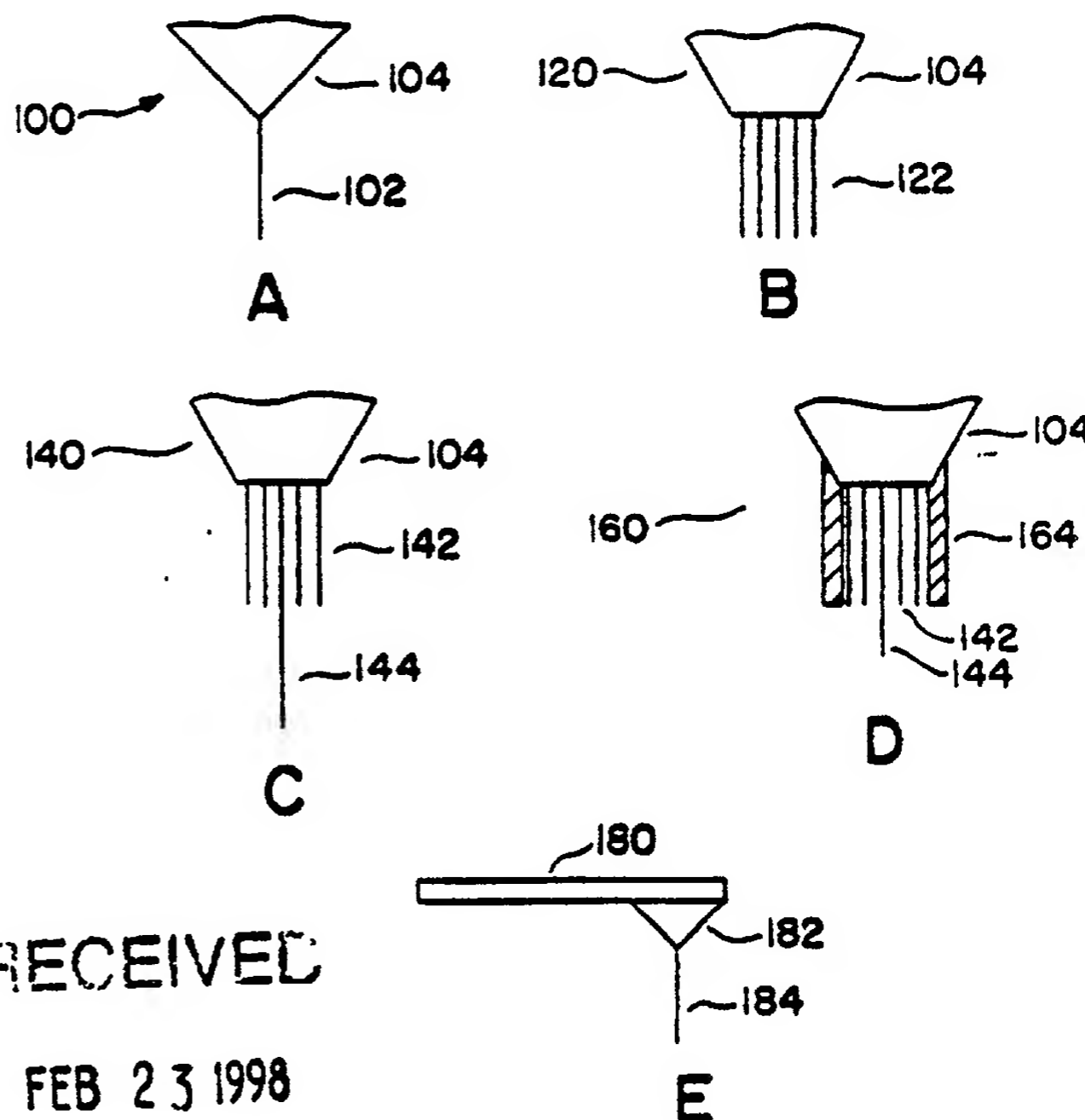
With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: MACROSCOPICALLY MANIPULABLE NANOSCALE DEVICES MADE FROM NANOTUBE ASSEMBLIES

## (57) Abstract

Macroscopically manipulable nanoscale devices made from nanotube assemblies are disclosed. The article of manufacture comprises a macroscopic mounting element capable of being manipulated or observed in a macroscale environment, and a nanoscale nanotube assembly attached to the mounting element. The article permits macroscale information to be provided to or obtained from a nanoscale environment. A method for making a macroscopically manipulable nanoscale devices comprises the steps of (1) providing a nanotube-containing material; (2) preparing a nanotube assembly device having at least one carbon nanotube for attachment; and (3) attaching said nanotube assembly to a surface of a mounting element.



RECEIVED

FEB 23 1998

BAKER &amp; BOTTS